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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,238	02/23/2004	Paul F. Schacht	163.1743US01	9174

7590 11/01/2006
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EXAMINER

KURTZ, BENJAMIN M

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 11/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/786,238	SCHACHT ET AL.	
	Examiner	Art Unit	
	Benjamin Kurtz	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32, 35 and 36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23-32, 35 and 36 is/are allowed.
- 6) ☐ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-3, 5-8, 10, 13 and 15-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tabani et al. US 2002/0112743 A1 in view of Labib et al. US 2004/0007255 A1. Regarding claim 1, Tabani teaches a method for treating a separation facility including a plurality of membranes (paragraph 46; Fig. 1), the method comprising: (a) providing liquid flow through the plurality of membranes (paragraph 63), (b) treating the plurality of membranes with a multiple phase treatment composition (paragraph 63) comprising a gaseous phase and a liquid phase at a volumetric ratio of the gaseous phase to the liquid phase of at least about 5:1 (paragraph 49); and (c) providing a liquid flow through the plurality of membranes (paragraph 64 and 65). Tabani does not teach the plurality of membranes being spiral wound membranes. Labib teaches a method for treating a separation facility including a plurality of spiral wound membranes (example 13 and 14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the method of treating a separation facility to treat spiral wound membranes because Labib teaches the cleaning method may be used on a tubular membrane (example 7) as well as spiral wound membranes (example 13 and 14) and the cleaning process is effective in

removing solid-particle foulants such as silt, clay or sand from membrane feeding channels during the cleaning process (paragraph 230).

Regarding claims 2-3, 5-7, 13 and 15, Tabani further teaches the multiple phase treatment composition comprises a sufficient amount of liquid phase to wet the plurality of membranes (paragraph 63); the gaseous phase of the cleaning solution comprises at least one of air and carbon dioxide (paragraph 63); the volumetric ratio of the gaseous phase to the liquid phase is between about 50:1 and about 6,000:1 (paragraph 49); the liquid phase flow rate in the multiple phase treatment composition comprises 400-450 ml/min, where 0.1 gal/min = 378.5 ml/min (paragraph 68); the liquid phase flow rate in the multiple phase treatment composition is 400-450 ml/min, where 15 gal/min = 56781 ml/min, which is less than about 15 gal/min (paragraph 68); the liquid phase of the multiple phase treatment composition comprises a pH adjusting agent (paragraph 58, paragraph 66); and the step (c) of providing a liquid flow through the plurality of membranes comprises diluting the liquid phase of the multiple phase treatment composition to provide a liquid treatment composition (paragraph 64 and 65), and circulating the liquid treatment composition through the plurality of membranes in the separation facility. The liquid treatment composition must inherently be circulating for it to flow through the plurality of membranes.

Regarding claim 8, Tabani further teaches the multiple phase treatment composition is applied to the plurality of membranes in a separation facility comprising an inlet (18) (paragraph 46), but fails to teach the gaseous volume at the inlet is about 10 SCFM to about 1,000 SCFM. However, it would have been obvious to one of

ordinary skill in the art at the time of the invention to have the gaseous volume at the inlet of Tabani about 10 SCFM to about 1,000 SCFM because a higher gaseous volume would clean more effectively, conversely too high a gaseous volume would damage the membranes.

Regarding claim 10, Tabani in view of Labib teach the method of claim 1, but fails to teach the plurality of membranes provided within the separation facility exhibit a total membrane area of at least about 200 m². However, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the plurality of membranes provided within the separation facility exhibit a total membrane area of at least about 200 m², because differences in area will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such area is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454,456, 105 USPQ 233, 235 (CCPA1955).

Regarding claim 16, Tabani in view of Labib teach the method of claim 1, but fails to teach the step of: (a) treating the plurality of membranes with a second multiple phase treatment composition comprising a gaseous phase and a liquid phase at a volumetric ratio of the gaseous phase to the liquid phase of at least about 5:1. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to have treated the plurality of membranes with a second multiple phase treatment composition comprising a gaseous phase and a liquid phase at a volumetric ratio of the

gaseous phase to the liquid phase of at least about 5:1 because repeating the treating step would result in a cleaner membrane versus performing treating step only once.

Regarding claim 17, Tabani further teaches the step (a) diluting the gaseous phase of the second multiple phase treatment composition (paragraph 64, 65) to provide a second liquid composition. However, Tabani et al fail to teach recirculating the second liquid composition through the plurality of membranes. It is well known that recycling is used to reduce costs by using less liquid and energy used to heat/cool the liquid. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have included the step of recirculating the second liquid composition through the plurality of membranes in the method of Tabani et al to in order to save liquid and reduce costs.

Regarding claim 18, Tabani teaches a method for treating a separation facility including a separation membrane (paragraph 46; Fig. 1), the method comprising: (a) displacing product from the separation membrane (paragraph 51); (b) treating the separation membrane with a multiple phase treatment composition comprising a gaseous phase and a liquid phase at a volumetric ratio of the gaseous phase to provide the liquid phase on the separation membrane (paragraph 53); (c) diluting the liquid phase on the separation membrane to provide liquid composition (paragraph 64), but fails to teach (d) recirculating the liquid composition in the separation facility and does not teach the membrane being spiral wound membrane. It is well known that recycling is used to reduce costs by using less liquid and energy used to heat/cool the liquid. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the

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invention to include the step of recirculating the liquid composition in the separation facility in the method of Tabani et al to in order to save liquid and reduce costs. Labib teaches a method for treating a separation facility including a plurality of spiral wound membranes (example 13 and 14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the method of treating a separation facility to treat spiral wound membranes because Labib teaches the cleaning method may be used on a tubular membrane (example 7) as well as spiral wound membranes (example 13 and 14) and the cleaning process is effective in removing solid-particle foulants such as silt, clay or sand from membrane feeding channels during the cleaning process (paragraph 230).

Regarding claim 19, Tabani further teaches the step of displacing product comprises introducing a liquid flow into the separation facility for displacing product from the separation membrane (paragraph 51), but fails to teach (d) recirculating the liquid composition in the separation facility. It is well known that recycling is used to reduce costs by using less liquid and energy used to heat/cool the liquid. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the step of recirculating the liquid composition in the separation facility in the method of Tabani et al to in order to save liquid and reduce costs.

Regarding claim 20, Tabani further teaches the step of displacing product comprises introducing a composition comprising gaseous air into the separation facility for displacing product from the separation membrane (paragraph 51), but fails to teach (d) recirculating the liquid composition in the separation facility. It is well known that

recycling is used to reduce costs by using less liquid and energy used to heat/cool the liquid. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the step of recirculating the liquid composition in the separation facility in the method of Tabani et al to in order to save liquid and reduce costs.

Regarding claim 21, Tabani further teaches the gaseous air is provided as part of a multiple phase treatment composition (paragraph 51), but fails to teach (d) recirculating the liquid composition in the separation facility. It is well known that recycling is used to reduce costs by using less liquid and energy used to heat/cool the liquid. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the step of recirculating the liquid composition in the separation facility in the method of Tabani et al to in order to save liquid and reduce costs.

Regarding claim 22, Tabani teaches a method for treating membranes comprising: (a) rinsing a membrane with a first liquid rinse composition (paragraph 63); (b) treating the membranes with a first multiple phase treatment composition (paragraph 63) comprising a gaseous phase and a liquid phase at a volumetric ratio of the gaseous phase to the liquid phase of at least about 5:1 (paragraph 49); (c) flooding the membrane with water to provide a first liquid treatment composition and recirculating the first liquid treatment composition within the membrane (paragraph 64, 65); (d) removing the first liquid treatment composition from the membrane (paragraph 65), but fails to teach the membrane being a spiral wound membrane and (e) treating the membrane

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with a second multiple phase treatment composition comprising a gaseous phase and a liquid phase at a volumetric ratio of the gaseous phase to the liquid phase of at least about 5:1. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to have treated the membrane with a second multiple phase treatment composition comprising a gaseous phase and a liquid phase at a volumetric ratio of the gaseous phase to the liquid phase of at least about 5:1 because repeating the treating step would result in a cleaner membrane versus performing treating step only once. Labib teaches a method for treating a separation facility including a plurality of spiral wound membranes (example 13 and 14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the method of treating a separation facility to treat spiral wound membranes because Labib teaches the cleaning method may be used on a tubular membrane (example 7) as well as spiral wound membranes (example 13 and 14) and the cleaning process is effective in removing solid-particle foulants such as silt, clay or sand from membrane feeding channels during the cleaning process (paragraph 230).

2. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tabani (743) in view of Labib (255) as applied to claims 1 and 3 above, and further in view of Zha et al. US 2001/0047962 A1. Tabani in view of Labib teaches a method according to claim 1, but fails to teach the gaseous phase comprises air and a treatment effective amount of at least one of ozone and carbon dioxide. Zha teaches a method of treating membranes with a multiple phase treatment composition (paragraph 8) comprising a gaseous phase and a liquid phase, where the gaseous phase comprises air or ozone

(paragraph 9). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention in view of the teachings of Zha to use ozone with air of the cleaning composition of Tabani in order to have similar effects of chlorine gas and additional features (paragraph 9 of Zha).

3. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tabani (743) in view of Labib (255) as applied to claim 1 above, and further in view of Kopp et al. US 5 643 455. Tabani in view of Labib teach the method of claim 1 but fails to teach the pressure of the multiple phase treatment composition within the treatment facility is below the bubble point for the plurality of membranes according to ASTM F316-03. Kopp teaches a method of cleaning a membrane by applying a multiple treatment phase composition below the bubble point of the membrane (col. 3, lines 27-31). Kopp fails to teach the bubble point according to ASTM F316-03, but it would have been obvious to use ASTM F316-03 because it is a well-known standard for measuring bubble points. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention in view of the teachings of Kopp to have the pressure of the multiple phase treatment composition of Tabani below the bubble point for the plurality of membranes, according to ASTM F316-03, in order to displace liquid in the fibers of the membranes (col. 3, lines 27-31 of Kopp et al).

4. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tabani (743) in view of Labib (255) as applied to claim 1 above, and further in view of Baldrige et al. US 2003/0047510 A1. Regarding claim 11, Tabani in view of Labib teaches the method of claim 1 but fails to teach the liquid phase of the multiple phase

treatment composition comprises an enzyme. Baldrige teaches a method for reducing biofilm in cross-flow filtration systems, where a liquid treatment composition comprises an enzyme (paragraph 21). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention in view of the teachings of Baldrige to have the liquid phase of the multiple phase treatment composition of Tabani comprise an enzyme in order to decrease fouling of the membranes (paragraph 21).

Regarding claim 12, Tabani in view of Labib teaches the method of claim 1 but fails to teach the liquid phase of the multiple phase treatment composition comprises a surfactant. Baldrige teaches a method for reducing biofilm in cross-flow filtration systems, where a liquid treatment composition comprises a surfactant (paragraph 21). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention in view of the teachings of Baldrige to have the liquid phase of the multiple phase treatment composition of Tabani comprise a surfactant in order to decrease fouling of the membranes (paragraph 21).

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tabani (743) in view of Labib (255) as applied to claim 1 above, and further in view of Cheryan (1986). Tabani in view of Labib teaches the method of claim 1 but fails to teach the step (a) of providing liquid flow through the plurality of membranes comprises displacing product from the plurality of membranes and rinsing the membranes to remove loose soil. Cheryan teaches providing water through membranes, therefore displacing product from the membranes, and rinsing the membranes until the exit water appears clean, therefore removing loose soil (p. 193). Therefore, it would have been obvious to one of

ordinary skill in the art at the time of the invention in view of the teachings of to providing liquid flow through the plurality of membranes comprises displacing product from the plurality of membranes and rinsing the membranes to remove loose soil in order to clean membranes while preventing the membrane from drying out (p. 193).

Allowable Subject Matter

6. Claims 23-32 and 35-36 are allowed.

The following is an examiner's statement of reasons for allowance: Claim 23 recites the step of soaking the filtration system for at least about 1 minute following the step of treating the filtration system with a multiple phase treatment composition. The prior art Husain et al. US 2002/0108906 A1 teaches treating the filtration system with a multiple phase treatment composition but fails to teach soaking the filtration system following this step.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

7. Applicant's arguments with respect to claims 1, 18 and 22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin Kurtz whose telephone number is 571-272-8211. The examiner can normally be reached on Monday through Friday 8:00am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Bk 10/24/06


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